

Although sometimes agitated to a greater extent than at others, the surface of mid-ocean is never free from the action of waves. A recent authority* has declared that were the whole ocean to be still or stagnant for a few days, all life would be destroyed, both in it and upon the earth. The extraordinary *permanence* of deep ocean-waves, as a conservator of power, would seem to be specially adapted in accordance with the conditions which this statement suggests: the whole surface may in fact be said to constantly rotate in an average orbit.

The actual velocity of the particles in wave motion being less than the apparent velocity of the wave, the mechanical effect is the same as if the body of the wave moves actually with a part of the velocity, as it seems to do. Let us take the case of a great storm wave forty feet in height, 600 through at the base, and conceive a volume of water contained in the section of such a wave moving with a velocity of six feet per second, or 360 feet per minute. Or consider an ordinary ocean wave sixteen feet in height and 180 feet at the base; and multiply the power requisite to move a section of this body of water 240 feet per minute by a thousand such and we may form an idea of the magnitude of the energy engaged in stirring the waters. These are the giant forces which are perpetually traversing the surface of the ocean.

ART. XXX.—*On a Linear Method of finding the
Stability of Ships.*

By E. K. HORNE, ESQ.

[Read by MR. MACGEORGE, on 11th September, 1871.]

* The reference has been mislaid, but the assertion is that of an eminent Continental naturalist.